

What is claimed is:

1. A radiation image sensor in which an image sensor assembly is placed on a mount substrate,

wherein said image sensor assembly comprises:

5 a sensor substrate of flat plate shape having a first surface and a second surface as front and back sides;

10 a light receiving portion comprising a plurality of photoelectric conversion elements two-dimensionally arranged on said first surface of said sensor substrate and in proximity to at least one edge thereof;

15 a scintillator formed on at least a surface of said light receiving portion, and outputting light of a wavelength that can be detected by said photoelectric conversion elements, in accordance with an incident radiation;

20 a resin layer placed in a surrounding area around said scintillator except for the edge to which said light receiving portion is in proximity, on said first surface of said sensor substrate; and

25 a protective film continuously and integrally covering a region from a surface of said scintillator via a side wall part of said sensor substrate on a side of the edge to which said light receiving portion is in proximity, to said second surface, and having a peripheral part fixed on sides except for the edge to

which said light receiving portion is in proximity, by said resin layer,

wherein said protective film on said second surface is sandwiched between said mount substrate and said sensor substrate so as to be fixed.

5           2. The radiation image sensor according to Claim 1, wherein said mount substrate has a plurality of through holes penetrating said mount substrate from a mount surface for said image sensor assembly, to a back side thereof.

10           3. The radiation image sensor according to Claim 2, wherein said image sensor assembly is fixed on said mount substrate with an adhesive and wherein said adhesive is placed so as to surround said through holes.

15           4. The radiation image sensor according to Claim 3, wherein said adhesive is placed in a grid pattern on said mount surface of said mount substrate for said image sensor assembly.

20           5. A making method of a radiation image sensor in which an image sensor assembly is placed on a mount substrate, the method comprising the steps of:

25           preparing the image sensor assembly comprising a sensor substrate of flat plate shape having a first surface and a second surface as front and back sides, a light receiving portion comprising a plurality of

photoelectric conversion elements two-dimensionally arranged on the first surface of the sensor substrate and in proximity to at least one edge thereof, and a scintillator deposited on at least a surface of the 5 light receiving portion and outputting light of a wavelength that can be detected by the photoelectric conversion elements, in accordance with an incident radiation;

10 forming a protective film continuously and integrally covering a region from a surface of the scintillator of the image sensor part via a side wall part of the sensor substrate on a side of the edge to which the light receiving portion is in proximity, to the second surface, and fixing a peripheral part of the 15 protective film on sides except for the edge to which the light receiving portion is in proximity, by a resin layer placed in a surrounding area around the scintillator except for the edge to which the light receiving portion is in proximity, on the first surface 20 of the sensor substrate; and

fixing the image sensor part on the mount substrate in a state in which the protective film on the second surface of the image sensor part is sandwiched between the mount substrate and the sensor 25 substrate, with the second surface of the image sensor part being directed toward a mount surface of the mount

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substrate.